

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: August 11, 2022
Hours: 19:00 Hours

Date **Time** **Load(MW)**
 8-Aug-22 19:33 hrs 513.31

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	186.76	400kV THP - Siliguri Line - I	259.14	
		Unit- II	183.96	400kV THP - Siliguri Line - II	257.52	
		Unit- III	185.37	400kV THP - Siliguri Line- IV	248.96	
		Unit- IV	184.61	400kV THP - Malbase Line - III	339.42	
		Unit- V	185.12	400kV Malbase - Siliguri Line	227.71	
		Unit- VI	185.61	-	-	
		Total	1,111.43	Auxiliary Consumption & Transformation Losses at Generator end	0.57%	
2	720MW MHP	Unit-I	196.40	400kV MHP - Jigmeling Line - I	241.97	400kV MHP-JLG Line IV under breakdown. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line I (Interim) on Standby. 400kV JLG_ALI Line II (Direct) on Standby.
		Unit-II	197.45	400kV MHP - Jigmeling Line - II	242.63	
		Unit-III	135.48	400kV MHP - Jigmeling Line - III	236.37	
		Unit-IV	196.10	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	90.31	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	249.92	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	374.27	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	45.85	
		-	-	80MVA, 220/132kV ICT - II (HV)	46.68	
		-	-	220kV Tsirang - Jigmeling Line	-30.58	
-	-	132kV Gelephu - Salakati Line	26.18			
Total	725.43	Auxiliary Consumption & Transformation Losses at Generator end	0.61%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	65.61	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	65.48	
		Unit- III	91.45	220kV CHP - Malbase Line- III	88.76	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	33.41	
		-	-	220kV Malbase - Birpara Line	38.80	
		-	-	66kV CHP - Chumdo Line	12.90	
		-	-	66kV CHP - Gedu Line	5.82	
		-	-	3x3MVA, 66/11kV TFR	1.41	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	0.37%			
4	24MW BHP (U/S)	Unit- I	12.30	220kV BHP - Semtokha Line	66.81	
		Unit- II	12.10	66kV BHP - Lobeyasa Line	26.35	
		Total	24.40	220kV BHP - Tsirang Line	-28.23	
5	40MW BHP (L/S)	Unit- I	20.40	5MVA, 66/11kV TFR	0.65	
		Unit- II	21.20	30MVA ICT, 220/66kV (HV)	3.13	
		Total	41.60	Auxiliary Consumption & Transformation Losses at Generator end	0.64%	
6	126MW DHP	Unit-I	44.36	220kV DHP - Tsirang Line	0.00	220kV DHP_Tsirang Line on Standby.
		Unit-II	45.01	220kV DHP - Dagapela Line	88.87	
		-	-	220kV Jigmeling - Dagapela Line	-34.60	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	89.37	Auxiliary Consumption & Transformation Losses at Gen. end	0.34%			
7	60MW KHP	Unit- I	16.56	132kV KHP - Nangkhoh Line	38.50	
		Unit-II	16.53	132kV KHP - Kilikhar Line	26.54	
		Unit- III	16.63	5MVA, 132/11kV TFR	0.42	
		Unit- IV	16.45	132kV Motanga - Rangia Line	41.43	
		Total	66.17	Auxiliary Consumption & Transformation Losses at Generator end	1.07%	

Note: Generation-Load Summary (MW) for August 11, 2022 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	1,541.21	373.97	365.84	1,163.22	8.13
2	Eastern Grid	791.60	103.82	98.65	691.80	5.17
Total		2,332.81	477.79	464.49	1,855.02	13.30

Note: Generation-Load Summary for August 11, 2021 at 19:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	504.62	249.93	247.37	185.49	2.56
2	Eastern Grid	659.13	81.51	77.66	646.82	3.85
Total		1,163.75	331.44	325.03	832.31	6.41

NOTE-

- The Instantaneous load balance,calculated as (Total generation - (Total export-Import) - Total domestic load), do not tend towards zero. This could be due to the following reasons:
 - Not all the meters are digital and nor are all the meter at all locations can be read at same time (say 9:00hrs) due to many meter to be read manually.
 - The clocks of all the locations are not synchronized.
- This report is generated to give an idea of the generation & load flow for the system at a particular instant.

BHUTAN POWER SYSTEM OPERATOR LOAD-GENERATION BALANCE REPORT

Coincidental Maximum Load

Date: August 12, 2022
Hours: 09:00 Hours

Date **Time** **Load(MW)**
 8-Aug-22 19:33 hrs 513.31

Sl. No.	Hydropower Plant	Unit	MW	Transmission Lines and Elements	Load (MW)	Remarks
1	1020MW THP	Unit- I	185.15	400kV THP - Siliguri Line - I	265.21	
		Unit- II	186.32	400kV THP - Siliguri Line - II	262.48	
		Unit- III	185.87	400kV THP - Siliguri Line- IV	256.50	
		Unit- IV	185.63	400kV THP - Malbase Line - III	323.66	
		Unit- V	185.32	400kV Malbase - Siliguri Line	238.34	
		Unit- VI	185.41	-	-	
		Total	1,113.70	Auxiliary Consumption & Transformation Losses at Generator end	0.53%	
2	720MW MHP	Unit-I	175.09	400kV MHP - Jigmeling Line - I	220.69	400kV MHP-JLG Line IV under breakdown. 132kV MHP_Yurmoo line I & II not in service. 400kV JLG_ALI Line II(Interim) on Standby. 400kV JLG_ALI Line II(Direct) on Standby
		Unit-II	175.11	400kV MHP - Jigmeling Line - II	221.16	
		Unit-III	135.41	400kV MHP - Jigmeling Line - III	215.77	
		Unit-IV	175.61	400kV MHP - Jigmeling Line - IV	0.00	
		-	-	132kV MHP - Yurmo Line - I	0.00	
		-	-	132kV MHP - Yurmo Line - II	0.00	
		-	-	500MVA, 400/220kV ICT at Jigmeling (HV)	65.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Interim)	234.48	
		-	-	400kV Jigmeling - Alipurduar Line - II (Interim)	0.00	
		-	-	400kV Jigmeling - Alipurduar Line - I (Direct)	351.49	
		-	-	400kV Jigmeling - Alipurduar Line - II (Direct)	0.00	
		-	-	80MVA, 220/132kV ICT - I (HV)	34.17	
		-	-	80MVA, 220/132kV ICT - II (HV)	34.79	
		-	-	220kV Tsirang - Jigmeling Line	-25.24	
-	-	132kV Gelephu - Salakati Line	14.96			
Total	661.22	Auxiliary Consumption & Transformation Losses at Generator end	0.54%			
3	336MW CHP	Unit- I	91.74	220kV CHP - Birpara Line- I	62.72	Unit IV under Shutdown.
		Unit- II	91.22	220kV CHP - Birpara Line- II	62.65	
		Unit- III	91.45	220kV CHP - Malbase Line- III	102.63	
		Unit- IV	0.00	220kV CHP - Semtokha Line- IV	29.57	
		-	-	220kV Malbase - Birpara Line	23.26	
		-	-	66kV CHP - Chumdo Line	10.89	
		-	-	66kV CHP - Gedu Line	5.71	
		-	-	3x3MVA, 66/11kV TFR	0.92	
Total	274.41	Auxiliary Consumption & Transformation Losses at Generator end	-0.25%			
4	24MW BHP (U/S)	Unit- I	11.90	220kV BHP - Semtokha Line	64.48	
		Unit- II	11.90	66kV BHP - Lobeyssa Line	25.06	
		Total	23.80	220kV BHP - Tsirang Line	-24.23	
5	40MW BHP (L/S)	Unit- I	20.50	5MVA, 66/11kV TFR	0.39	
		Unit- II	21.10	30MVA ICT, 220/66kV (HV)	1.60	
		Total	41.60	Auxiliary Consumption & Transformation Losses at Generator end	-0.46%	
6	126MW DHP	Unit-I	42.40	220kV DHP - Tsirang Line	0.00	220kV DHP_TSI Line on Standby.
		Unit-II	43.00	220kV DHP - Dagapela Line	84.95	
		-	-	220kV Jigmeling - Dagapela Line	-30.46	
		-	-	5MVA, 220/33kV TFR	0.20	
Total	85.40	Auxiliary Consumption & Transformation Losses at Generator end	0.29%			
7	60MW KHP	Unit- I	16.56	132kV KHP - Nangkhoh Line	41.22	
		Unit-II	16.56	132kV KHP - Kilikhar Line	23.87	
		Unit- III	16.55	5MVA, 132/11kV TFR	0.38	
		Unit- IV	16.62	132kV Motanga - Rangia Line	29.90	
		Total	66.29	Auxiliary Consumption & Transformation Losses at Generator end	1.24%	

Note: Generation-Load Summary (MW) for August 12, 2022 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	1,538.91	362.53	357.41	1,171.16	5.12
2	Eastern Grid	727.51	101.90	97.48	630.83	4.42
Total		2,266.42	464.43	454.89	1,801.99	9.54

Note: Generation-Load Summary for August 12, 2021 at 09:00hrs.

Sl. No	Region	Total Generation (MW)	Total Load [Generation - Export (MW)]	Total Load [Feeder Summation (MW)]	Total Export/Import (MW)	Auxiliary Consumption & Transformation Losses (MW)
1	Western Grid	536.97	276.28	274.21	175.64	2.07
2	Eastern Grid	658.90	60.28	57.87	683.67	2.41
Total		1,195.87	336.56	332.08	859.31	4.48

NOTE:

- The Instantaneous load balance,calculated as (Total generation - (Total export-Import) - Total domestic load), do not tend towards zero. This could be due to the following reasons:
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